

proprietatibus, plusquam Horatianum annorum numerum huius intra scrinia clausos, iamdudum flagitamus ; quos, uti par est omnibus numeris absolutos, aliquando prodituros esse speramus. Interim in negotiis Academicis singulari urbanitate diu versatus, nunc non modo collegio augurum Britannicorum qui caeli prae-sagia observant praesidet, sed septemviris quoque Academiae Oxoniensi legibus conscribendis ascriptus est. Academiae illius pulcherrimae inter decora diu numeretur, diu Platonis praecceptor obsecutus videat ut *οἰ ἐν τῷ καλλιτάλαιῳ* geometriam nequaquam neglegant. Duco ad vos Henricum Stephen Smith.

Of Prof. Huxley the Orator spoke thus :—

Academi inter silvas qui verum quaerunt, non modo ipsi veritatis lumine vitam hanc umbratilem illustrare conantur, sed illustrius quemque veritatis investigatorem aliunde delatum ea qua par est comitate excipiunt. Adest vir cui in veritate exploranda ampla sane provincia contigit, qui sive in animantium sive in arborum et herbarum genere quicquid vivit investigat, ipsum illud vivere quid sit, quali ex origine natum sit ; qui exquirit quae cognitionis necessitudo, inter priores illas viventium species et has quae etiam nunc supersunt, intercedat. Olim in oceano Australi, ubi rectis "oculis monstra natantia" vidit, victoriam prope primam, velut alter Perseus, a Medusa reportavit ; varias deinceps animantium formas quasi ab ipsa Gorgone in saxum versas sagaciter singulare explicavit ; vitae denique universae explorandae vitam suam totam dedicavit. Physicorum inter principes diu honoratus, idem (ut verbum mutuemur a Cartesio illo cuius laudes ipse in hac urbe quondam praedicavit) etiam "metaphysica" honore debito prosecutus est. Illum denum liberaliter educatum esse existimat qui cum ceteris animi et corporis dotibus instructus sit, tum praesertim quicquid turpe sit oderit, quicquid sive in arte sive in rerum natura pulchrum sit diligat ; neque tamen ipse (ut ait Aristoteles) "animalium parum pulchrorum contemplationem fastidio puerili reformidat," sed in perpetua animantium serie hominis vestigia perscrutari conatus, satis ampla liberalitate in universa rerum natura "humani nihil a se alienum putat." Duco ad vos virum intrepidum, facundum, proposito tenacem, Thomam Henricum Huxley.

Finally, among the scientific men who were honoured with the degree was Mr. H. C. Sorby, of whom the Public Orator said :—

Quam magna est rerum natura, in magnis quam immensa, in minimis quam magna. Quam multa miracula, antiquis ignota, illis nuper ostendit qui minuta curiositate arcana illa quae oculorum aciem fugiunt, instrumentorum novorum auxilio perscrutantur. Hic autem illi est qui, et terrestrium et de caelo delapsorum lapidum investigandis elementis primis, primus inter Britannos talium instrumentorum usum accommodavit. Nuper societatis geologicae praeses electus, annorum tringinta labores oratione cumulavit in qua vere marmoreum sibi monumentum exigit. Illud vero acutissimum quod crystallis etiam minutissim exploratis in quibus (ut fit) pars altera est aquae plena, altera aeris quoque vacua, olim indicavit qua potassium caloris temperie inclusa illa aqua totum illud vacuum implere, quo potassium rerum statu saxum illud, quondam ignibus prorsus liquidum, primum durescere potuisse. Scilicet crystallum illud (ut Clandianus ait)

non potuit toto mentiri corpore gemmam ;
sed medio mansit proditor orbe latex.
auctus honos ; liquidi crescent miracula saxy
et conservatae plus meruitis aquae.

Suo phasculo vectus quot maria mox lustrabit, in terram iam pridem unum saltem Argonautarum, qui terram oculis penetrabat, eatenus aemulatus, quod in intima saxonum materia perspicienda, ipse oculo potuit "quantum contendere Lynceus." Duco ad vos Henricum Clifton Sorby.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

THE Clothworkers' Company have voted 3,500*l.*, over and above 10,000*l.* previously voted, to cover the complete cost of the site, building, furnishing, and fitting with all necessary appliances the textile industries and dyeing instruction departments of the Yorkshire College, Leeds, and they have further agreed to maintain the building and its operations in full effect without extraneous or adventitious aid, for a period of five years as from January 1 next, at a cost of 1,200*l.* per annum. This increased annual subvention has been necessitated by the addition of instruction in dyeing and applied chemistry connected with the

finishing of textile fabrics. The new buildings will be completed about October next.

THE following awards for proficiency in Natural Science have been made at St. John's College, Cambridge :—Foundation Scholarships to W. A. Forbes, Fleming, Hart ; a Proper Sizarship to Samways ; Exhibitions to Lister, Samways, Stuart (already scholar), and Weldon. Forbes received also a Wright's Prize and augmentation of the year's emoluments to 100*l.*. The Open Exhibition was awarded at Easter to Edmunds (University College, London), and a Second Exhibition to T. Roberts (University College, Aberystwith).

THE amended report of the Cambridge Botanic Garden Syndicate has been confirmed so far as relates to the stipend of the curator, which is fixed at 150*l.*, he not to take private pupils, and to be allowed 25*l.* per annum for the rent of a house until one is provided in the garden.

PROBABLY the oldest teacher in existence is the venerable M. Chevreul. This eminent chemist, who is about ninety years of age, has been advertised as lecturer on chemistry in the Paris Museum. The first part of his lectures will be devoted to the subject of contrast of colours. M. Chevreul enjoys excellent health, and exhibits admirable bodily as well as mental activity.

THE fourth centenary of the foundation of the University of Copenhagen was celebrated in that city on the 4th inst. No less than 4,000 people took part in the celebration, including the Royal family and all the highest civic and military authorities. The festive address was delivered by the Rector Magnificus, Dr. Madvig.

SCIENTIFIC SERIALS

Bulletin de l'Académie Royale de Belgique, No. 4.—Besides communications on the blood of the lobster (Fredericq), displacement of spectral lines of stars (Spee), and perpetual motion (Plateau), we have here a paper by M. Fredericq on the theory of respiratory innervation ; he is led to regard the spinal cord as containing an inspiratory centre and an expiratory centre, chloral acting to paralyse the former.—M. van der Mensbrugghe contributes a paper on new applications of the potential energy of liquid surfaces, dealing with the principal cause of loss of charge by water-jets, origin of the energy of motion acquired by waves of the sea, cause of production of bars at the mouths of certain rivers, and origin of the force of the Gulf Stream.—M. De Selys Longchamps communicates the additions to the synopsis of the Calopterygines.

Atti della R. Accademia dei Lincei, April.—We note here the following :—Influence of boric acid on acetic fermentation, by Prof. Herzen.—Distribution of subsoil water in the Agro Romano, and its influence in production of malaria, by S. Tommasi-Crudeli.—On giant-cauldrons, by S. Botti.—Geological studies on the northern Graian Alps, Italian side, by Prof. Baretti.—On the supposed identity of columbine with limonine, by SS. Patermo and Oglialoro.—On the kinzigite of Calabria, by Prof. Lovisato.—New rock-specimens from Calabria, and remarks on the serpentine formation of that region, by the same.—On the geodetic line ; third general problem ; analysis of spheroidal triangles, by Dr. Wurterberg.—On observations of the horizontal diameter of the sun, made at the Royal Observatory of the Campidoglio in 1878, by S. Respighi.—Catalogue of algae gathered during the cruise of the cutter *Violante*, and especially in some small islands of the Mediterranean, by S. Piccone.—On the motion of a simple pendulum in a railway carriage, by S. di Saint-Robert.—On the difficulty of obtaining sulphuric acid perfectly free from arsenic, on the mode of obtaining it, and on some things relating to arsenic, by S. Selmi.—On the miocene strata of Siena, and considerations on the upper miocene.—On the crystalline form of anglesite of Sardinia, by S. Sella.—Obituary notice of Volpicelli, with list of published works.

Journal of the Franklin Institute, May.—Limit of efficiency in heat-engines, by Prof. Thurston.—The driving-power of leathern belts, by Mr. Cooper.—On the initial effect of the earth's rotation on the free pendulum, by Prof. Tobin.—On the measurement of tidal heights, by Mr. d'Auria.

The Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg (vol. iii. 1876) contain, amongst other less important ones, the following papers :—On the manners and customs of the Hamrān tribe, by M. Eckardt.—On the

myths and songs from the South Pacific, by Dr. C. Crüger.—On the metamorphosis of amphibia, by Dr. J. W. Spengel.—Some diagnoses of new Heteromera, by Dr. Haag-Rutenberg.—Descriptions of some new butterflies from the Philippine Islands, by G. Semper.—On the species of the butterfly-genus *Zethera*, by the same.—On butterflies from Wladiwostock and from the Gaboon River, by Dr. C. Crüger.—On dimorphism and variations of some North American butterflies, by J. Boll.—On the metamorphosis of *Sepedon*, by G. Gercke.—On *Helix alonensis*, Fer., by H. Strelbel.—Note on the geography of molluscs, by J. D. E. Schmeltz.—On the miocene formation of Reinbeck and its mollusc fauna, by Carl Gottsche.—On the geognostical conditions of the neighbourhood of Kiel, by Dr. A. Braasch.—On petroleum springs, by S. B. Guttentag.—Ornithological notes on the fauna of the Lower Elbe, by F. Böckmann.—On the lepidoptera fauna of the same district, by L. Graeser and A. Sauber.

The *Jahrbuch der kais. kön. geologischen Reichsanstalt zu Wien* (1879, part 1, January—March) contains the following papers:—On the metalliferous deep eruptions of Zinnwald-Altenberg (on the Saxon-Bohemian frontier), and on the tin-mining in that district, by E. Reger (with plates).—On the tertiary formation of Waldböckelheim (near Kreuznach, Rhenish Prussia) and its *polyparium* fauna, by Dr. A. von Klipstein.—On the geology of the Rhodope Mountain chain, south and south-east of Tatar Pazardžik, by Anton Pelz.—On the jurassic limestone rock *debris* in the diluvial formation of Moravia and Galicia, by Anton Rzebak.—Geological sketch of the highest part of the Sierra Nevada in Spain, by Dr. Richard von Drasche. This sketch is highly interesting and elaborate; it is accompanied by several plates and numerous illustrations.—On some limestones containing *orbitoida* and nummulites from the so-called "Goldberg" near Kirchberg, on the Wechsel Mountain (Austria), by Franz Toula.—Researches on the age of the North-Bohemian brown-coal (lignite) formation, by D. Stur.—On the productivity and the geotectonic conditions of the Caspian naphtha districts, by Hermann Abich.

The *Moniteur Scientifique* (Paris: June, 1879), amongst numerous papers, which are noticed by us elsewhere, contains the following papers:—On the influence which a change of temperature exercises upon the deviation which inverted sugar produces upon polarised light, by Paul Casamajor.—On the acceleration in the tanning of hides by means of phosphoric acid, by E. Ador.—On "antichlore" (hyposulphite of soda), by M. G. Lunge.—On ozokerite and ceresine from Galicia, by Dr. J. Grabowsky.—Researches on the root of *Alostonia*, by O. Hesse.—On the use of anhydrous chloride of calcium as a conservative for steam-boilers, by M. Burstyn.

The *Journal of the Russian Physico-chemical Society* (vol. xi. No. 5) contains the following papers:—On the amines containing tertiary alcoholic radicals, by M. W. Rudneff.—On tertiary isosulphocyanates, by the same.—On the polarisation of electrodes, by M. A. Sokoloff.

The *Rivista Scientifica Industriale* (Nos. 8 and 9, 1879).—From these numbers we note the following papers:—On a direct application of the free fall of bodies, by G. Mocenigo.—On the atmospheric whirlstorm of February 24—25, by Prof. L. Respighi.—On a telephonic microphone for demonstration at schools, by Prof. G. Cantoni.—On a new method to determine the specific gravity of liquids, by Prof. M. Cagnassi.—On some new phenomena connected with the plasticity of solids, by Prof. C. Marangoni.—On some phenomena due to the viscosity of liquids, by the same.—On sand showers, by Prof. Tacchini.—On a telephotographic apparatus with a single wire, by Prof. C. Perossino.—On the magnetic properties developed in nickel and cobalt by induction compared to those of iron, by Prof. T. Martini.—On a new steelyard-densimeter, by Dr. C. Chistoni.

The *Revue Internationale des Sciences* (May, 1879) contains the following papers:—On the glacial epoch, by Th. Kjerulf.—On the reciprocal assistance which descriptive and geographical zoology may render to each other, by M. Lataste.—On the colouring-matter of urine, by M. Masson.—On the mechanical theory of the position of leaves, by Dr. Schwendener.—The number, besides the above, contains an interesting account of the organisation of medical instruction at Lyons, as well as an excellent review by M. C. Issaurat of Dr. F. Isnard's new book entitled "Spiritualisme et Materialisme." This serial has considerably improved since it appears only in monthly parts instead of in weekly numbers as it did up to the beginning of 1879.

Mittheilungen der naturforschenden Gesellschaft in Bern (Nos. 923—936, 1877).—From this part we note the following papers of interest:—Botanical and geological notes from a tour in the province of Reggio in Calabria, by J. Coaz.—On the most important conditions of shape in the leaf of phanerogamic plants, by Herr Fankhauser.—On the principal laws of growth in Floraidea, by the same.—On the formation of the stem in *Lepas anatifera*, by Dr. Lang.—On some luminous bacteria, by Dr. M. Pertz.—Various notes on electrical instruments, by Herr Rothen.—On the soda efflorescences in the Ganges districts, by Prof. Schwarzenbach.—On the geology of Kerguelen's Land, by Prof. Th. Studer.—On deep-water siphonophora, by the same.—On the coloration of the retina, by Dr. A. Valentini.—On some preparations preventing fermentation, and their applicability for the conservation of food.

The *Giornale di Scienze naturali ed economiche* (Palermo, 1878, vol. xiii.) contains the following papers:—On the cornea of osseous fishes; contribution to the morphology of the eye of vertebrates, by Dr. C. Emery.—On the solar spots observed at Palermo in 1877 and the first three months of 1878, and on the frequency of the vapours of iron and magnesium at the solar surface, by P. Tacchini.—Enumeration and synonyms of the conchyfera of the Mediterranean, by the Marchese di Monterosato.—On the fossils of the crystalline limestone of the Casale and Bellampo Mountains in the province of Palermo, by Prof. G. G. Gemmellaro.

Reale Istituto Lombardo di Scienze e Lettere, Rendiconti, vol. xii, fasc. viii.—Mechanical demonstration of the second principle of thermodynamics, by S. Crotte.—On functions whose first derivatives belong to the class zero, by Prof. Ascoli.—Imaginary plane of linear complex and its intersections, by S. Aschieri.

Fasc. ix.—Prophylaxis of the plague, by Dr. Zucchi.—Researches on the electric conductivity of carbon, by Prof. Ferrini.—On the product of the more integrable and finite functions, by Prof. Ascoli.

SOCIETIES AND ACADEMIES

LONDON

Mathematical Society, June 12.—C. W. Merrifield, F.R.S., president, in the chair.—Mr. R. C. Rowe was proposed for election.—The following communications were made:—Notes on the reduction of a system of forces; and on plane curves, by Mr. J. J. Walker.—Notes on determinants of *n* dimensions, by Mr. Lloyd Tanner.—Curves for the inscription of a regular nonagon and undecagon in a circle, by the Rev. Dr. Freeth.—On Clifford's graphs and on the twenty-one co-ordinates of a conic in space, by Dr. Spottiswoode, P.R.S.—Two geometrical notes, by Prof. H. J. S. Smith, F.R.S.

Chemical Society, June 5.—Mr. Warren De La Rue, president, in the chair.—It was announced that a ballot for the election of Fellows would be held at the next meeting (June 19).—The following papers were read:—A contribution to the theory of fractional distillation, by T. E. Thorpe. The author has observed that of a mixture of equal volumes of carbon tetrachloride, boiling point 76° 6', and of methyl alcohol, boiling-point 65° 2', 46' 5 per cent. of the whole distils over at 55° 6'—55° 9', 10° lower than the boiling point of its most volatile constituent.—Preliminary note on the action of organo-zinc compounds on quinones, by F. R. Japp. The author has studied the action of zinc ethyl on phenanthrene quinone and obtained a substance crystallising in faintly-yellowish plates having the composition $C_{16}H_{14}O_2C_2H_6O$; he hopes by these reactions to distinguish quinones from double ketones.—Third report to the Chemical Society on researches on some points in chemical dynamics, by Dr. Wright, Messrs. Luff and Rennie. This is a lengthy paper in which the action of carbonic oxide and hydrogen on a uniform weight of copper oxide has been studied at various temperatures; the results are plotted out in numerous curves; in all cases carbonic oxide reduces more quickly or at a lower temperature than hydrogen.—On fractional distillation, by F. D. Brown. The author has studied with great care the distillation of mixtures of benzene and carbon disulphide.—On chlorstannic acid, by J. W. Mallet. A bottle containing a strong solution of stannous chloride after standing for a year deposited a transparent jelly-like substance which proved to be SnO_2HCl . Soda and ammonia salts were obtained.—On indigopurpurin and indirubin, by E. Schunck,